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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT A185	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP99/07137	International filing date (day/month/year) 20 December 1999 (20.12.99)	Priority date (day/month/year) 22 December 1998 (22.12.98)
International Patent Classification (IPC) or national classification and IPC H01H 59/00, B81B 3/00, B81C 1/00		
Applicant NEC CORPORATION		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input checked="" type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 20 December 1999 (20.12.99)	Date of completion of this report 20 June 2000 (20.06.2000)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP99/07137

I. Basis of the report

1. With regard to the **elements** of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP99/07137

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
- ☒ claims Nos. 4-9,13-35,38,62

because:

- ☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international preliminary examination (*specify*):

See supplemental sheet for continuation of Box III. 1.

- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4-9,13-35,38,62
are so unclear that no meaningful opinion could be formed (*specify*):

- ☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for said claims Nos. _____

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.
- ☐ the computer readable form has not been furnished or does not comply with the standard.

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: III.1

Claims 4-9, 13-35, 38 and 62

"The aforementioned conductive member", "the aforementioned insulating member" and "the aforementioned upper electrode" described in Claims 4, 5 and 9 are unclear as there is no mention of these features prior to the disclosure corresponding to "the aforementioned".

"A flexible beam member part of which is facing the aforementioned gap" disclosed in Claims 13, 22, and 30 does not correspond to the explanation and the drawings of the preferred embodiment disclosed in the specification. Therefore, Claims 13-35 are unclear.

"The aforementioned semiconductor material" disclosed in Claim 38 is unclear, as there is no mention of this feature prior to the disclosure corresponding to "the aforementioned".

"The fourth region" and "the second electrode" as disclosed in Claim 62 do not correspond to the explanation and the drawings of the preferred embodiment disclosed in the specification. Therefore, Claim 62 is not clear.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	3, 39, 42-44, 49-61, 63-69	YES
	Claims	1, 2, 10-12, 36, 37, 40, 41, 45-48	NO
Inventive step (IS)	Claims	3, 53, 56-61, 63-69	YES
	Claims	1, 2, 10-12, 36, 37, 39-52, 54, 55	NO
Industrial applicability (IA)	Claims	1-3, 10-12, 36, 37, 39-61, 63-69	YES
	Claims		NO

2. Citations and explanations

Claims 1, 2, and 11 are not novel over Document 1 (JP, 4-370622, A (Matsushita Electric Work, Ltd.), 24 December 1992 (24.12.92), (Family: none)), or Document 2 (JP, 9-213191, A (Nippon Telegraph and Telephone Corporation) 15 August 1997 (15.08.97), (Family: none)) cited in the international search report.

Claims 10, 12, 45-48 are not novel over the above Document 2.

Claims 36, 37, 40, 41 are not novel over the above Document 1.

Claim 39 does not involve an inventive step in the light of the above Document 1 and Document 3 (JP, 8-509093, A (Brooktree Corporation), 24 September 1996 (24.09.96), & WO, 94018688, A1 & EP, 681739, A & US, 5479042, A & US, 5620933, A & US, 5627396, A & DE, 69417725, C), cited in the international search report. It would be easy for a person skilled in the art to apply the feature disclosed in the above Document 3 to the micromachine switch described in the above Document 1.

Claim 42 does not involve an inventive step in the light of Documents 1 and 2, as well as Document 6 (JP, 8-213803, A (Texas Instruments Inc.), 20 August 1996 (20.08.96), & EP, 637042, A & CN, 1115067, A & JP, 8-21967, A & EP 709911, A & US, 5526172, A & US, 5619061,

A), cited in the international search report. It would be easy for a person skilled in the art to apply the feature disclosed in the above Document 6 to a micromachine switch as described in the above Documents 1 and 2.

Claim 43 does not involve an inventive step in the light of Documents 1 and 2 as well as Document 3 or Document 4 (JP, 10-149757, A (Omron Corp.), 2 June 1998 (02.06.98), (Family: none) cited in the international search report. It would be easy for a person skilled in the art to apply the feature described in the above Document 3 or 4 to a micromachine switch disclosed in the above Document 1 or 2.

Claim 44 does not involve an inventive step in the light of the above Document 1 or 2 as well as Document 5 (JP, 9-17300, A (Rockwell International Inc.) 17 January 1997 (17.01.97), & US, 5578976, A & EP, 751546, A) cited in the international search report. It would be easy for a person skilled in the art to apply the feature described in the above Document 5 to a micromachine switch disclosed in the above Document 1 or 2.

Claim 49 does not involve an inventive step in the light of Document 2 and Document 7 (JP, 5-54782, A (Sharp Corporation), 5 March 1993 (05.03.93), (Family: none), Document 8 (JP7-14490, A (Matsushita Electric Works, Ltd.) 17 January 1995 (17.01.95), (Family: none), or Document 9 (JP, 9-251834, A (Omron Corp.) 22 September 1997 (22.09.97), (Family: none) cited in the international search report. It would be easy for a person skilled in the art to apply the feature described in the above Document 7, 8 or 9 to a micromachine switch disclosed in the above Document 2.

Claims 50-52 do not involve an inventive step in the light of Document 1 or 2, as well as Document 10 (JP, 5-242788, A (Matsushita Electric Works, Ltd.), 21 September 1993 (21.09.93), (Family: none) cited in the international

search report. It would be easy for a person skilled in the art to apply the feature described in the above Document 10 to a micromachine switch disclosed in the above Document 1 or 2.

Claims 54 and 55 do not involve an inventive step in the light of the above Document 1 or 2 as well as Document 6. It would be easy for a person skilled in the art to apply the feature described in Document 6 to a micromachine switch disclosed in Document 1 or 2.

VIII. Certain observations on the international application

Claims 1, 13, 22 and 30 describe a feature which is "more or less horizontal". However, it is not clear to what extent it is horizontal.

As "an insulation" and "a semiconductor" are both technical terms in Japanese which are not provided with clear definition, the description such as "the first insulating member is formed from the identical electrode material as the aforementioned beam member" as described in Claim 23 is not technically clear.

Claim 25 indicates that "the aforementioned intermediate electrode is provided on the base of the second insulating member" but this contradicts the description in Claim 22 wherein "an intermediate electrode is formed on the base of the beam member", and is therefore unclear.

Claim 29 indicates that "the aforementioned second intermediate electrode is formed on the base of the third insulating member", but this contradicts the description in Claim 28 wherein "an intermediate electrode is formed on the second beam member", and therefore is unclear.

Claim 42 is unclear relative to the disclosure in Claim 33.

Claims 45-48 are unclear, as although they describe "the aforementioned upper electrode" there is no description justifying the use of "aforementioned".

Claims 51 and 52 are unclear, as although they describe "the aforementioned insulating film" there is no description justifying the use of "aforementioned".